

REMARKS

I. Introduction

Claims 1-26 are pending in the present application. In view of the following remarks, it is respectfully submitted that all of the presently pending claims are allowable.

II. The Claim Rejections Under 35 U.S.C. § 103(a) Should Be Withdrawn

Claims 1, 3-11, 13-20 and 26 stand rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 6,462,805 to Wu et al. ("Wu") in view of U.S. Patent No. 4,093,356 to Bigelow ("Bigelow"). (See 2/28/06 Office Action, pp. 2-5.)

Wu describes a transfective LCD 300 which includes a circular polarizer 330-A positioned on an outer surface of a front substrate 310-A. A liquid crystal 320 is positioned beneath the front substrate 310-A. A rear substrate 310-B is positioned beneath the liquid crystal 320. A transfective mirror 340 is positioned beneath the rear substrate 310-B. A second circular polarizer 330-B is positioned beneath the transfective mirror 340 and above a light source 350. (See Wu, col. 7, ll. 13-54; Fig. 3-B.)

Bigelow describes a liquid crystal device which utilizes a quarter-wave plate 25 positioned at a 45° angle relative to the direction of the axes of the dye molecules 17 when in quiescent mode (with the direction of the axes when in quiescent mode defined as the Y direction). (See Bigelow, col. 2, ll. 40-44.) Bigelow further discloses a single effective circular polarizer made of a linear polarizer 40, oriented perpendicular to the direction of the axes of the dye molecules 17 when in quiescent mode (the X direction), in combination with a second

quarter-wave plate 35, also positioned at a 45° angle relative to the Y axis. (See Bigelow, col. 2, l. 67 - col. 3, l. 4.)

The Examiner has correctly recognized that Wu does not disclose or suggest “a first circular X-polarizer” and “a second circular X-polarizer,” but asserts that Bigelow discloses these elements and that it would have been obvious to one of ordinary skill in the art to modify the display of Wu with Bigelow in order to improve the light utilization efficiency. Specifically, the Examiner asserts that Bigelow discloses “a circular X-polarizer (40) with a quarter-wave plate (35) having polarization in X-direction and to emerge light beam having circular polarization (functions as the first circular X-polarizer).” (See 2/28/06 Office Action, ¶ 2, p. 3 and ¶6, p. 7). This assertion is incorrect. Bigelow in fact discloses a linear polarizer 40 and a quarter-wave plate 35. (See Bigelow, col. 2, l. 60 - col. 3, l. 4).

However, even if Applicants were to agree that the linear polarizer 40 and the quarter wave plate 35 acted as a first circular X-polarizer, the Examiner would need to find a second circular X-polarizer in the reference. The Examiner asserts that “a circular polarizer with a quarter wave plate (25) having polarization in X-direction to emerge light beam having circular polarization (functions as the second circular X-polarizer.” (See 2/28/06 Office Action, ¶ 2, p. 3 and ¶6, p. 7). The Examiner only points to a single structure in this statement, *i.e.*, the quarter wave plate 25. The quarter wave plate 25 is not a circular X-polarizer. The Examiner states that the quarter wave plate is combined with a circular polarizer, but what is this phantom circular polarizer that is combined with the quarter wave plate. It appears the Examiner is combining the linear polarizer 40, the quarter wave plate 35 and the quarter wave plate 25 to be the first and second circular X-polarizers as directed by Examiner’s assertion of directions 41 and 52a in the

Office Action. (See 2/28/06 Office Action, ¶ 2, p. 3 and ¶6, p. 7).

However, the disclosure of Bigelow with respect to the only light beams that pass through each of these elements clearly shows that the second quarter wave plate 25 creates a Y polarization. Specifically, beam 78 is an un-polarized beam transmitted through linear polarizer 40 to emerge as X-polarized beam 80. (See Bigelow, col. 3, line 67- col. 4, line 8.). Linear polarized beam 80 is transmitted through quarter wave plate 35 to emerge as beam 82 with a circular polarization. (See, *Id.* col. 4, lines 8-13). Circularly polarized beam 82 passes through transfective member 28 to emerge as beam 84 having the same circular polarization. (See, *Id.* col. 4, lines 14-17). Then, the beam 84 is transmitted through the quarter wave plate 25 to emerge as “beam 86 of linearly polarized light having a polarization vector 86a essentially in the Y direction.” (See, *Id.* col. 4, lines 17-21 (emphasis added)). Thus, the quarter wave plate 25 in conjunction with the combination of the linear polarizer 40 and the quarter wave plate 35 cannot be the “second circular X-polarizer” as asserted by the Examiner.

Applicants respectfully submit that Bigelow fails to cure the deficiencies of Wu, and that Wu and Bigelow, viewed alone or in combination, do not disclose or suggest “a *first circular X-polarizer*,” “a *liquid crystal display having a first side adjacent to a second side of the first circular X-polarizer*,” and “a *second circular X-polarizer having a first side adjacent to a second side of the liquid crystal display*” as recited in claim 1. Because claims 3-9 depend from, and therefore include all of the limitations of, claim 1, it is respectfully submitted that these claims are also allowable.

Claim 10 recites “a *first circular X-polarizer*” and “a *second circular X-polarizer*.” Thus, it is respectfully submitted that claim 10 is allowable for at least the reasons stated above

with reference to claim 1. Because claims 11 and 13-19 depend from, and therefore include all of the limitations of, claim 10, it is respectfully submitted that these claims are also allowable for at least the reasons stated above with reference to claim 1.

Claim 20 recites "*an internal circular X-polarizer*" and "*an external circular X-polarizer.*" Thus, it is respectfully submitted that claim 20 is allowable for at least the reasons stated above with reference to claim 1.

Claim 26 recites "*a first circular X-polarizer*" and "*a second circular X-polarizer.*" Thus, it is respectfully submitted that claim 26 is allowable for at least the reasons stated above with reference to claim 1.

Claims 2 and 12 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Wu in view of Bigelow in further view of U.S. Patent No. 6,853,421 to Minakuchi ("Minakuchi") (See 2/28/06 Office Action, pp. 4-5.) Applicants respectfully submit that Minakuchi does not cure the above-described deficiencies of Wu and Bigelow. Thus, because claim 2 depends from, and, therefore includes all of the limitations of claim 1, it is respectfully submitted that this claim is also allowable for at least the reasons stated above with reference to claim 1. Because claim 12 depends from, and, therefore includes all of the limitations of claim 10, it is respectfully submitted that this claim is also allowable for at least the reasons stated above with reference to claim 10.

Claims 21-23 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Wu in view of Bigelow in further view of U.S. Patent No. 6,642,977 to Kotchick et al. ("Kotchick") (See 2/28/06 Office Action, pp. 5-6.) Claim 21 recites "*a first circular X-polarizer*" and "*a second circular X-polarizer.*" Applicants respectfully submit that Kotchick does not cure the above

described deficiencies of Wu and Bigelow. Thus, it is respectfully submitted that neither Wu nor Bigelow nor Kotchick, either alone or in combination, disclose or suggest “*a first circular X-polarizer*, and “*a second circular X-polarizer*,” as recited in claim 21. Therefore, applicants respectfully submit that claim 21 is allowable. Because claims 22 and 23 depend from, and, therefore include all of the limitations of claim 21, it is respectfully submitted that these claims are also allowable.

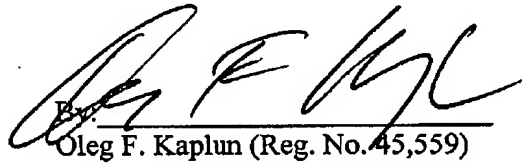
Claims 24 and 25 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Wu in view of Bigelow in view of Kotchick in further view of U.S. Patent No. 5,548,108 to Moldskred et al. (“Moldskred”). (See 2/28/06 Office Action, pp. 6-7.) Applicants respectfully submit that Moldskred does not cure the above-mentioned deficiencies of Wu, Bigelow and Kotchick. Thus, because claims 24-25 depend from, and, therefore include all of the limitations of claim 21, it is respectfully submitted that these claims are also allowable for at least the reasons stated above with reference to claim 21.

CONCLUSION

It is therefore respectfully submitted that all of the pending claims are allowable. All issues raised by the Examiner having been addressed, an early and favorable action on the merits is earnestly solicited.

Respectfully submitted,

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